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ABSTRACT

A study explored the savings and/or costs associated with employers' decisions to use school measures--grades, teacher recommendations, school reputation--to screen job applicants. Using the results of the National Center on the Educational Quality of the Workforce's National Employer Survey, the analysis focused on two questions: (1) whether employers who have an effective connection with schools have lower recruiting costs because they are more successful in choosing new workers who "fit" the firm, and (2) whether these employers are more likely to invest in the training of these first-time workers during their first year of employment. An exploratory preliminary analysis yielded three principal answers. First, establishments that used school measures to screen job applicants had work forces with a smaller proportion of employees with less than 1 year of tenure. Second, within the manufacturing sector, establishments that used school measures to screen job applicants provided more training to new workers. Third, the results of the analysis suggested the existence of an education and training nexus. The same set of establishments did the following: used school measures to screen job applicants, invested in the initial training of new employees, provided tuition benefits, reported increased skill requirements for their jobs, and was more likely to have nonmanagers and nonsupervisors using computers. (Appendixes include variable definitions and survey questions and standard multivariate regression and logistic analyses results.) (YLB)

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EQW WORKING PAPERS

ED 393 986

The Education and Training Nexus: Employers' Use of Academic Screens and the Provision of New-Hire Training

by

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"The Education and Training Nexus: Employers' Use of Academic Screens and the Provision of New-Hire Training" by Robert Zemsky, Daniel Shapiro, Barbara Gelhard, and Maria Iannozzi

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Executive Summary

This study explores the savings and/or costs associated with employers' decisions to use (or not to use) school measures—grades, teacher recommendations, school reputation—to screen job applicants. Using the results of the EQW National Employer Survey, the analysis focuses on two questions posed by the National School-to-Work Office:

1. Do employers who have an effective connection with schools—employers who either use grades and school reputations when screening applicants or have students on their worksites—have lower recruiting costs because they are more successful in choosing new workers who "fit" the firm?

2. Are these employers more likely to invest in the training of these first-time workers during their first year of employment?

Our exploratory analysis yields three principal, albeit preliminary, answers to these questions:

1. Establishments that use school measures—grades, teacher recommendations, and the reputation of an applicant's school—to screen job applicants have workforces with a smaller proportion of employees with less than one year of tenure. The implication is that these establishments do less trial-and-error hiring. To the extent there are substantial costs associated with high turnover during the first year of employment, it can be said that these firms avoid those costs.

2. Within the manufacturing sector, establishments that use school measures to screen job applicants provide more training—both formal and informal—to new workers. In general, it is the manufacturing sector that is the more purposeful in both its use of school measures to screen job applicants and in its investment in training.

3. Taken in conjunction with earlier findings derived from the EQW National Employer Survey, the results of our analysis for the National School-to-Work Office suggest the existence of an education and training nexus. That is, it is the same set of establishments that uses school measures to screen job applicants, that invests in the initial training of new employees, that provides tuition benefits so employees can enroll in work-related courses outside of the firm, that reports increased skill requirements for their jobs, and that is more likely to have non-managers and non-supervisors using computers.

The next task is to confirm and extend these findings when the results of the resurvey of establishments participating in the EQW National Employer Survey becomes available. That resurvey is currently scheduled to occur in early 1996.

Introduction

The analysis presented in this paper follows the successful release of the first two rounds of findings from the EQW National Employer Survey. The survey's initial findings documented both education's contribution to establishment productivity and the reluctance of most employers to use school measures—grades, teacher recommendations, and the reputation of an applicant's school—to help screen and evaluate potential employees. The principal exception to this latter finding was also an important one: non-manufacturing employers who use grades to screen potential hires are likely to be significantly more productive than similar employers who do not use grades in the screening process.

Intrigued by these results, the National School-to-Work Office (NSWO) asked whether the EQW National Employer Survey could similarly document other opportunities and/or costs associated with employers' decisions to use—or not to use—school measurements to screen job applicants. To explore further the potential of the EQW National Employer Survey to inform the development of school-to-work initiatives, the NSWO requested that the National Center on the Educational Quality of the Workforce (EQW) perform two special studies that explore employer practices, attitudes, and incentives. After reviewing related research findings presented by EQW and after consulting with the measurement subcommittee of the National Leadership Council, the NSWO posed two questions that became the focus of the first study:

Question 1: Do employers who have an effective connection with schools—employers who either use grades and school reputations when screening applicants or have students on their worksites—have lower recruiting costs because they are more successful in choosing new workers who "fit" the firm?

Question 2: Are these employers more likely to invest in the training of these first-time workers during their first year of employment?

Although the EQW National Employer Survey did not ask these questions directly, we believe that at least preliminary answers can be derived from it.

Methodology

The Survey

The EQW National Employer Survey (designed by Lisa Lynch in collaboration with EQW Co-Directors Robert Zemsky and Peter Cappelli) was administered by the U.S. Bureau of the Census as a telephone survey in August and September of 1994 to a nationally representative sample of private establishments with more than 20 employees. The survey was specifically created to become a unique source of information on how employers recruit workers, organize work, invest in physical capital, and provide education and training investments.

The EQW National Employer Survey over-sampled establishments in the manufacturing sector and establishments with more than 100 employees. Public-sector employers, non-profit institutions, and corporate headquarters were excluded from the sample. Although the survey excluded establishments with less than 20 employees (which represent about 85 percent of all establishments in the United States), the sampling frame represents establishments that employ about 75 percent of all workers. This is because, while most establishments are small (with less than 5 employees), most workers are employed in larger establishments. Since the focus of our research was on the intersection between employers' practices and employees' human capital experiences, we decided to concentrate on those establishments employing the most employees. The target respondent in the manufacturing sector was the plant manager; in the non-manufacturing sector, it was the local business site manager. The survey was designed, however, to allow for multiple respondents so that information could be obtained from establishments that kept financial information, such as the book value of capital or the cost of goods and materials used in production, at a separate finance office (typically at corporate headquarters for multi-establishment enterprises). Computer-assisted telephone interviewing was used to administer each survey, which took about 28 minutes to complete.

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The Analysis

This analysis was commissioned as an exploratory study, and our analytic strategy reflected that mandate. In order to avoid imposing premature assumptions on the nature of the dependent variable, both standard multivariate regression and logistic analyses were employed.

The first step was to designate a group of independent or control variables derived from questions asked on the EQW National Employer Survey instrument. See Appendix A for a complete list of variable definitions (Tables A1 and A2) and the text of the survey questions from which they were derived (Table A3). The analysis controlled for the size of the establishment using 5 categories: 20-49 employees; 50-99 employees; 100-249 employees; 250-1,000 employees; and 1,000 or more employees. We also controlled for the industry of the establishment using 21 industry codes (see Appendix B.) Other independent variables were categorized along several dimensions—they capture *the condition of the establishment*, the *condition of the workforce*, the *investments establishments make in their employees*, the *involvement of establishments in the educational system*, and the *importance of certain screening mechanisms* in their hiring decisions.

To account for the *condition of the establishment*, we used the following variables: employed less than one year, represented by the percentage of currently employed workers that have been with the establishment for less that one year (derived from Question 44); sizing, represented by the percentage change in establishment size, which is positive if upsizing, negative if downsizing, or zero for no change in size from 1991 to 1993 (Question 46); computer use, represented by the percentage of production and non-managerial workers using computers (Question 12); change in skill requirements, represented by whether the skills required to perform production or support jobs at an acceptable level increased, decreased, or remained the same (Question 14); and multiestablishment, which determined whether the establishment was part of a multi-establishment firm or whether it was a single establishment (Question 2a).

To account for the *condition of the workforce*, we used the following independent variables, derived from Question 41: clerical workers, represented by the percentage of the total workforce in office, clerical, sales, or customer service jobs; front-line workers, represented by the percentage of the total workforce in production or front-line jobs; and technical workers, represented by the percentage of the total workforce in technical or technical support jobs. We also used answers to Question 42, which captured the years of education of various types of workers: education-clerical, represented by the average years of completed schooling for office and clerical workers; education-front-line, represented by the average years of completed schooling for production and front-line workers; and education-technical, represented by the average years of completed schooling for technical and technical support workers.

To account for the *investments establishments make in their employees*, we used several variables: recruitment costs, which represents the percentage of total labor costs spent annually on the recruitment and selection of new employees (Question 58); new-hire orientation, which represents whether or not the establishment provides new-hire orientation training (Question 17f); tuition reimbursement, which represents whether or not the establishment pays for tuition reimbursement (Question 17m); and remedial skills

training, which represents whether or not remedial skills training in arithmetic and literacy is part of formal training (Question 28).

To account for the *involvement of establishments in the educational system*, we used the following variables derived from Question 39: cooperative hiring, which represents whether the establishment had agreements-to-hire with local schools; and internship programs, which represents whether the establishment participated in internship programs.

Finally, we used Question 57 to account for the *importance of certain screening mechanisms* in employers' hiring decisions. The possible responses for Question 57 were collapsed into two variables: a school screening variable, representing the sum of establishments' ranking of the importance of years of completed schooling, academic performance, teacher recommendations, and the reputation of an applicant's school when hiring a new non-supervisory or production worker; and a job experience screening variable, representing the sum of establishments' ranking of the importance of previous work experience, previous employer recommendations, and current employee recommendations when hiring a new non-supervisory or production worker. (For a table of the weighted responses to Question 57, please see Appendix C.)

Results

Question 1

The first question asks whether employers' reliance on school measures to screen job applicants has an effect on direct recruitment costs. Based on Lisa Lynch's documentation of the relationship between years of education and establishment productivity (National Center on the Educational Quality of the Workforce 1995), we also wanted to test whether a workforce's years of schooling had any effect on recruitment costs. In the initial operationalization of the first hypothesis, we made recruitment costs the dependent variable—the percentage of total labor costs spent annually on the recruitment and selection of employees for an establishment (recruitment costs). The multivariate regression analysis did not confirm the assumption that using schooling as a screening criterion or having a workforce with higher levels of education reduces direct recruitment costs. (See Appendix D, Tables D1 and D2.) Nor did the logistic analysis, which predicted whether the establishment spent above the median on recruitment relative to labor cost (high recruitment costs), answer the first question in the affirmative. (See Appendix D, Tables D3 and D4.)

An Alternate Question. We next asked: might there be an alternate way to pose the question? Turning to previous EQW research, we noted that during the focus groups conducted to identify incentives for firms to participate in work-based learning programs (Zemsky 1994), many employers reported that they often did not screen new hires, but instead "tried them out"—often resulting in a series of hires and fires until both employer and employee found a suitable match.

What this trial-and-error approach to hiring suggested was the possibility that both direct and indirect recruiting costs are incurred by employers who do not use school measures to screen new hires. More particularly, we posited that high turnover of new, front-line employees during their first year of employment could be considered to be a measure of these indirect recruitment costs.

We used Question 44 of the EQW National Employer Survey—"What percentage of your currently employed workers have been with the firm for less than one year?"—to answer this alternate question. To control for the effect that the down- or upsizing of an establishment would have on the proportion of workers employed for less than one year, we used Question 46: "In the past three years, has the number of employees at your establishment increased, decreased, or stayed the same? By what percentage?" We ran a logit analysis using the dependent variable, low tenure (a Boolean value based on Question 44), which indicates whether more or less than 10 percent of an establishment's workforce has been employed for less than one year. We also made the percentage of employees with under one year of tenure the dependent variable and ran a multivariate regression to test the hypothesized relationship.

The logit analyses yielded compelling results in both the manufacturing and non-manufacturing sectors. (See Tables 1 and 2, respectively). The models identify a significant and negative relationship between school screening variables and low tenure. In other words, both manufacturing and non-manufacturing establishments that use school measures as important criteria when screening and hiring new workers report, on average, fewer workers with one year or less of tenure.

Table 1

Logistic Analysis Predicting Whether More Than 10 Percent of an Establishment's Employees Has One Year or Less of Tenure for the Manufacturing Sector

Response Variable: employed less than 1 year (1=More than 10% of workforce has been with establishment less than 1 year; 0=10% or less of workforce has been with the establishment less than 1 year)
Number of Observations: 873

Response Profile

Ordered Value	Employed less than 1 year	Count
1	1	319
2	0	554

Testing Global Null Hypothesis: BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	1148.189	977.890	
SC	1152.961	1130.592	
-2 LOG L	1146.189	913.890	232.299 with 31 DF (p=0.0001)
Score			168.414 with 31 DF (p=0.0001)

(Table 1, continued)

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
Intercept	1.6164	1.5695	1.0606	0.3031		
20-49 Employees	-0.00340	0.3739	0.0001	0.9927	-0.000656	0.997
50-99 Employees	0.0630	0.3230	0.0380	0.8454	0.013273	1.065
100-249 Employees	0.4012	0.3007	1.7798	0.1822	0.084350	1.494
250-1,000 Employees	0.4177	0.2528	2.7315	0.0984	0.106726	1.519
Establishment Type	-0.2202	0.1900	1.3423	0.2466	-0.057864	0.802
Textile & Apparel	-0.0218	0.3706	0.0035	0.9532	-0.003386	0.978
Lumber/Paper	-0.3379	0.3480	0.9426	0.3316	-0.060383	0.713
Printing/Publishing	-0.0682	0.3755	0.0330	0.8558	-0.011213	0.934
Chemicals/Petroleum	-0.6990	0.4168	2.8121	0.0936	-0.106078	0.497
Primary Metals	-0.7487	0.3662	4.1803	0.0409	-0.129211	0.473
Fabricated Metals	-1.0912	0.3850	8.0329	0.0046	-0.182131	0.336
Machinery/Electrical	-0.9958	0.3976	6.2723	0.0123	-0.173410	0.369
Transportation Equip.	-0.6046	0.3930	2.3660	0.1240	-0.091745	0.546
Misc. Manufacturing	-0.0973	0.3399	0.0819	0.7747	-0.017527	0.907
Sizing	0.0407	0.00524	60.1946	0.0001	0.925540	1.042
Computer Use	-0.00425	0.00310	1.8788	0.1705	-0.071664	0.996
Technical Workers	-0.00858	0.0137	0.3901	0.5322	-0.047454	0.991
Clerical Workers	-0.00878	0.0119	0.5472	0.4595	-0.054991	0.991
Front-Line Workers	-0.00131	0.00824	0.0253	0.8736	-0.015239	0.999
Change in Skill Req.	-0.1298	0.1874	0.4796	0.4886	-0.034756	0.878
Remedial Skills Trng.	0.00079	0.1119	0.0000	0.9944	0.000348	1.001
New-Hire Orientation	0.5730	0.2373	5.8282	0.0158	0.124324	1.774
Tuition Rmbrsmnt.	-0.8046	0.2237	12.9407	0.0003	-0.184538	0.447
Education-Technical	-0.0402	0.0364	1.2145	0.2704	-0.059376	0.961
Education-Front-Line	-0.00032	0.0985	0.0000	0.9974	-0.000158	1.000
Education-Clerical	0.00638	0.0688	0.0086	0.9260	0.004334	1.006
Recruitment Costs	0.0520	0.0197	6.9436	0.0084	0.141137	1.053
Internship Programs	0.1034	0.1961	0.2779	0.5981	0.028497	1.109
Cooperative Hiring	0.3709	0.1995	3.4565	0.0630	0.087171	1.449
School Screening	-0.1125	0.0276	16.5661	0.0001	-0.213766	0.894
Job Exp. Screening	-0.0132	0.0380	0.1208	0.7281	-0.016303	0.987

Association of Predicted Probabilities and Observed Responses

Concordant	= 79.8%	Somers' D	= 0.599
Discordant	= 20.0%	Gamma	= 0.600
Tied	= 0.2%	Tau-a	= 0.278
(176726 pairs)		c	= 0.799

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Table 2

Logistic Analysis Predicting Whether More Than 10 Percent of an Establishment's Employees Has One Year or Less of Tenure for the Non-Manufacturing Sector

Response Variable: employed less than 1 year (1=More than 10% of workforce has been with establishment less than 1 year; 0=10% or less of workforce has been with the establishment less than 1 year)

Number of Observations: 660

Response Profile

Ordered Value	Employed less than 1 year	Count
1	1	320
2	0	340

Testing Global Null Hypothesis: BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	916.348	815.009	
SC	920.840	963.253	
-2 LOG L	914.348	749.009	165.339 with 32 DF (p=0.0001)
Score			144.445 with 32 DF (p=0.0001)

(Table 2, continued)

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
Intercept	1.8240	1.2538	2.1166	0.1457		
20-49 Employees	-0.2440	0.3688	0.4377	0.5083	-0.061503	0.784
50-99 Employees	-0.0930	0.3739	0.0618	0.8036	-0.021399	0.911
100-249 Employees	-0.00884	0.3601	0.0006	0.9804	-0.001982	0.991
250-1,000 Employees	0.3107	0.3700	0.7050	0.4011	0.064797	1.364
Multiestablishment	0.4307	0.2085	4.2684	0.0388	0.113243	1.538
Construction	-0.5302	0.4002	1.7553	0.1852	-0.099443	0.588
Transportation	-0.8187	0.4315	3.5999	0.0578	-0.129863	0.441
Communication	-0.4768	0.5079	0.8811	0.3479	-0.058952	0.621
Utilities	-2.1287	0.5308	16.0833	0.0001	-0.307912	0.119
Wholesale Trade	-0.9016	0.4122	4.7846	0.0287	-0.168295	0.406
Retail Trade	0.2463	0.4583	0.2888	0.5910	0.040215	1.279
Finance	-0.7068	0.4752	2.2120	0.1369	-0.103188	0.493
Insurance	-0.4836	0.4725	1.0473	0.3061	-0.069284	0.617
Hotels	0.4525	0.4393	1.0609	0.3030	0.075399	1.572
Business Services	-0.2541	0.4443	0.3272	0.5673	-0.040610	0.776
Sizing	0.0207	0.00471	19.3501	0.0001	0.284879	1.021
Computer Use	-0.00311	0.00285	1.1840	0.2765	-0.067406	0.997
Technical Workers	0.00122	0.00712	0.0292	0.8644	0.013453	1.001
Clerical Workers	0.00461	0.00816	0.3193	0.5720	0.046073	1.005
Front-Line Workers	0.00790	0.00569	1.9312	0.1646	0.137609	1.008
Change in Skill Req.	-0.0998	0.2003	0.2485	0.6181	-0.026322	0.905
Remedial Skills Training	-0.1786	0.1328	1.8073	0.1788	-0.072714	0.836
New-Hire Orientation	0.5025	0.2431	4.2719	0.0387	0.113631	1.653
Tuition Reimbursement	-0.6155	0.2195	7.8629	0.0050	-0.165248	0.540
Education-Technical	-0.0460	0.0358	1.6476	0.1993	-0.074757	0.955
Education-Front-Line	0.00400	0.0503	0.0063	0.9366	0.004200	1.004
Education-Clerical	-0.0666	0.0689	0.9350	0.3336	-0.052236	0.936
Recruitment Costs	0.0615	0.0165	13.9786	0.0002	0.238934	1.063
Internship Programs	0.3043	0.2119	2.0628	0.1509	0.083635	1.356
Cooperative Hiring	-0.1232	0.2250	0.2997	0.5841	-0.029995	0.884
School Screening	-0.0596	0.0311	3.6684	0.0555	-0.113788	0.942
Job Exp. Screening	-0.0335	0.0424	0.6219	0.4303	-0.043169	0.967

Association of Predicted Probabilities and Observed Responses

Concordant	= 77.1%	Somers' D	= 0.545
Discordant	= 2.7%	Gamma	= 0.545
Tied	= 0.2%	Tau-a	= 0.272
(108800 pairs)		c	= 0.772

In addition, both manufacturing and non-manufacturing establishments that offer tuition reimbursement have higher tenure. As we would expect, recruitment costs are also positively related to low tenure for both sectors—the more new employees an establishment has, the more it spends on recruiting.

The results of the regression analysis were similar but less compelling. (See Appendix E, Tables E1 and E2.) In the manufacturing sector, the school measures variable is significantly and negatively associated with low tenure. In other words, manufacturing establishments who use school measures such as grades, school reputation, teacher recommendations, and years of schooling as screening criteria have more stable workforces. In the non-manufacturing sector, however, the school screening variable is not significantly related to a large number of new hires. In this model, we do see that the education level of clerical and office workers is negatively and significantly associated with an establishment having a large number of employees with less than one year of tenure—or, the higher the education level of these workers, the more stable an establishment's workforce will be.

Question 2

We used the same statistical strategy employed to answer the first question to explore the second, which asks whether employers who use school measures when screening and hiring front-line workers are more likely to invest in the training of these new workers. We conducted the analyses using dependent variables that represent formal training costs and informal training hours. For the logit analysis, high formal training costs refers to whether or not an establishment spends more or less than the median on training new non-supervisory workers relative to total labor costs; for the standard regression analysis, formal training costs refers to the amount spent on training new non-supervisory workers relative to total labor costs. In the standard regression examining informal training, the amount of informal training is measured by the log of the average total hours of informal training given to new front-line workers in order for them to become fully proficient in their jobs.

We include as independent variables remedial skills training, tuition reimbursement, and new-hire orientation in order to control for any effects on the outcome variable produced by these activities. Our interest is to examine whether using schooling criteria to screen potential employees is related to the employer's investment in substantive, add-on training for new hires during their first year of employment—not training that initiates new employees, remedies deficits in basic skills, or reflects the employee's decision to continue his or her formal, school-based education.

To the extent that the second question can be answered affirmatively by the EQW National Employer Survey, it is within the manufacturing, not the non-manufacturing, sector. Those manufacturing establishments that score high on the school measures variable do show an increased investment in training new non-supervisory workers.

Formal Training. To examine formal training, we used the dependent variable, high formal training costs, which is a Boolean value that indicates whether an establishment spent more or less than the median on training new non-supervisory workers relative to total labor costs. The logistic model indicates a positive, significant effect in the manufacturing sector between the use of school measures to evaluate job applicants and a propensity to spend more than the median on training new non-supervisors (Table 3). (See Appendix F, Table F1, for the equivalent regression models.)

Table 3

Logistic Analysis Predicting Whether an Establishment Spends More Than the Median on Training New Non-Supervisory Workers Relative to Total Labor Costs for the Manufacturing Sector

Response Variable: high formal training costs (1=Establishment spends more than the median on training new non-supervisory workers relative to total labor costs; 0=establishment spends median or less)

Number of Observations: 873

Response Profile

Ordered Value	High Formal Trng. Costs	Count
1	1	404
2	0	469

Testing Global Null Hypothesis: BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	1207.391	1104.463	
SC	1212.163	1261.937	
-2 LOG L	1205.391	1038.463	166.928 with 32 DF (p=0.0001)
Score			148.389 with 32 DF (p=0.0001)

(Table 3 continued on next page)

(Table 3, continued)

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
Intercept	-3.7098	1.4975	6.1374	0.0132		
20-49 Employees	0.1978	0.3456	0.3277	0.5670	0.038095	1.219
50-99 Employees	0.4063	0.2957	1.8877	0.1695	0.085646	1.501
100-249 Employees	0.2478	0.2730	0.8239	0.3640	0.052102	1.281
250-1,000 Employees	0.1358	0.2200	0.3812	0.5370	0.034702	1.145
Multiestablishment	0.3367	0.1791	3.5345	0.0601	0.088488	1.400
Textile & Apparel	-0.8948	0.3748	5.6998	0.0170	-0.139153	0.409
Lumber/Paper	-0.5958	0.3451	2.9808	0.0843	-0.106474	0.551
Printing & Publishing	-0.6487	0.3746	2.9986	0.0833	-0.106641	0.523
Chemicals & Petroleum	-0.5500	0.3933	1.9559	0.1620	-0.083470	0.577
Primary Metals	-0.6686	0.3539	3.5691	0.0589	-0.115396	0.512
Fabricated Metals	-0.9934	0.3658	7.3751	0.0066	-0.165810	0.370
Machinery/Electrical	-0.7835	0.3583	4.7818	0.0288	-0.136437	0.457
Transportation Equip.	-0.8531	0.3813	5.0058	0.0253	-0.129461	0.426
Misc. Manufacturing	-0.7927	0.3447	5.2875	0.0215	-0.142828	0.453
Sizing	-0.00036	0.00216	0.0284	0.8661	-0.008284	1.000
Computer Use	0.00597	0.00281	4.5171	0.0336	0.100600	1.006
Technical Workers	0.0109	0.0116	0.8816	0.3478	0.060148	1.011
Clerical Workers	0.00799	0.0110	0.5305	0.4664	0.050078	1.008
Front-Line Workers	0.0153	0.00745	4.2098	0.0402	0.177468	1.015
Change in Skill Req.	0.0455	0.1754	0.0673	0.7953	0.012185	1.047
Remedial Skills Trng	0.3292	0.1010	10.6160	0.0011	0.144788	1.390
New-Hire Orientation	0.9433	0.2347	16.1567	0.0001	0.204661	2.568
Tuition Reimbursement	0.7016	0.2235	9.8562	0.0017	0.160894	2.017
Education-Technical	0.0309	0.0349	0.7875	0.3749	0.045744	1.031
Education-Front-Line	-0.0533	0.0929	0.3284	0.5666	-0.026183	0.948
Education-Clerical	0.0437	0.0650	0.4526	0.5011	0.029685	1.045
Employed <1 Year	0.00298	0.00658	0.2055	0.6503	0.021926	1.003
Recruitment Costs	0.0942	0.0229	16.9471	0.0001	0.255527	1.099
Internship Programs	-0.3051	0.1822	2.8033	0.0941	-0.084080	0.737
Cooperative Hiring	0.4340	0.1823	5.6667	0.0173	0.101989	1.543
School Screening	0.0714	0.0258	7.6277	0.0057	0.135674	1.074
Job Exp. Screening	-0.0358	0.0360	0.9867	0.3205	-0.044199	0.965

Association of Predicted Probabilities and Observed Responses

Concordant	= 74.2%	Somers' D	= 0.487
Discordant	= 25.5%	Gamma	= 0.488
Tied	= 0.2%	Tau-a	= 0.243
(189476 pairs)		c	= 0.744

In the logistic model for the non-manufacturing sector (Table 4), the relationship between the school measures index and training investment in new workers is positive but not significant. (See Appendix F, Table F2, for the equivalent regression models.) However, the model does indicate that establishments with low tenure invest more in training. In addition, if the skills requirements to perform production and support jobs at an acceptable level have increased, these establishments invest more in new-worker training. As in the manufacturing sector, establishments that offer more formal training on remedial skills and offer new-hire orientation invest more in new-worker training.

Table 4

Logistic Analysis Predicting Whether an Establishment Spends More Than the Median on Training New Non-Supervisory Workers Relative to Total Labor Costs for the Non-Manufacturing Sector

Response Variable: high formal training costs (1=Establishment spends more than the median on training new non-supervisory workers relative to total labor costs; 0=establishment spends median or less.)

Number of Observations: 660

Response Profile

Ordered Value	High Formal Trng. Costs	Count
1	1	350
2	0	310

Testing Global Null Hypothesis: BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	914.529	790.847	
SC	919.021	943.583	
-2 LOG L	912.529	722.847	189.682 with 33 DF (p=0.0001)
Score			162.556 with 33 DF (p=0.0001)

(Table 4 continued on next page)

(Table 4, continued)

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
Intercept	-0.4188	1.3192	0.1008	0.7509		
20-49 Employees	0.3741	0.3731	1.0052	0.3161	0.094301	1.454
50-99 Employees	0.7644	0.3807	4.0310	0.0447	0.175903	2.148
100-249 Employees	0.6063	0.3639	2.7765	0.0957	0.136044	1.834
250-1,000 Employees	0.8106	0.3677	4.8599	0.0275	0.169062	2.249
Multiestablishment	0.1763	0.2127	0.6867	0.4073	0.046340	1.193
Construction	-0.4781	0.4173	1.3122	0.2520	-0.089668	0.620
Transportation	0.5683	0.4480	1.6097	0.2045	0.090149	1.765
Communication	1.4174	0.5577	6.4586	0.0110	0.175257	4.127
Utilities	0.7605	0.4705	2.6123	0.1060	0.110002	2.139
Wholesale Trade	0.3749	0.4237	0.7830	0.3762	0.069975	1.455
Retail Trade	0.00211	0.4626	0.0000	0.9964	0.000345	1.002
Finance	1.4017	0.5146	7.4203	0.0064	0.204649	4.062
Insurance	0.9170	0.4929	3.4615	0.0628	0.131389	2.502
Hotels	0.5889	0.4436	1.7626	0.1843	0.098136	1.802
Business Services	0.3444	0.4598	0.5609	0.4539	0.055028	1.411
Sizing	0.00302	0.00401	0.5685	0.4509	0.041544	1.003
Computer Use	0.00168	0.00287	0.3426	0.5583	0.036435	1.002
Technical Workers	0.00635	0.00737	0.7425	0.3889	0.070201	1.006
Clerical Workers	-0.0159	0.00837	3.6252	0.0569	-0.159249	0.984
Front-Line Workers	-0.00575	0.00590	0.9504	0.3296	-0.100072	0.994
Change in Skill Req.	0.3615	0.2012	3.2300	0.0723	0.095327	1.436
Remedial Skills Training	0.6998	0.1487	22.1425	0.0001	0.284943	2.013
New-Hire Orientation	1.1836	0.2613	20.5152	0.0001	0.267675	3.266
Tuition Reimbursement	0.1638	0.2263	0.5238	0.4692	0.043962	1.178
Education-Technical	-0.0554	0.0376	2.1765	0.1401	-0.090042	0.946
Education-Front-Line	-0.0796	0.0532	2.2336	0.1350	-0.083573	0.924
Education-Clerical	-0.00690	0.0702	0.0097	0.9217	-0.005412	0.993
Employed <1 Year	0.0130	0.00575	5.1294	0.0235	0.136349	1.013
Recruitment Costs	0.0697	0.0202	11.9192	0.0006	0.270817	1.072
Internship Programs	-0.0260	0.2134	0.0148	0.9032	-0.007134	0.974
Cooperative Hiring	-0.0215	0.2247	0.0091	0.9239	-0.005226	0.979
School Screening	0.0460	0.0317	2.0971	0.1476	0.087812	1.047
Job Exp. Screening	-0.0916	0.0437	4.3926	0.0361	-0.118112	0.912

Association of Predicted Probabilities and Observed Responses

Concordant	= 80.1%	Somers' D	= 0.603
Discordant	= 19.8%	Gamma	= 0.604
Tied	= 0.1%	Tau-a	= 0.301
(108500 pairs)		c	= 0.801

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Informal Training. For our multivariate regression model of informal training in the manufacturing sector (Table 5), we used the dependent variable, informal training hours, which represents the log of the average total hours of informal training by a supervisor, co-worker, or other staff member that front-line workers receive to become fully proficient in their jobs. The analysis yields similar results to those observed in the model examining formal training: establishments that used school measures to help screen job applicants provided, on the average, more hours of informal training for new front-line workers. In the non-manufacturing sector (Table 6), however, there is no discernible relationship between the school measures and hours of informal training.

Table 5

Standard Multivariate Regression Analysis Using the Log of the Average Total Hours of Informal Training as the Dependent Variable for the Manufacturing Sector

Dependent Variable: informal training hours (The log of the average total hours of informal training by supervisor, co-worker, and others that a front-line worker receives to become fully proficient in a job)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	32	181.76612	5.68019	3.813	0.0001
Error	780	1162.07230	1.48984		
C Total	812	1343.83842			
	Root MSE	1.22059	R-square	0.1353	
	Dep Mean	4.29777	Adj R-sq	0.0998	
	C.V.	28.40053			

(Table 5 continued on next page)

(Table 5, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
Intercept	2.045949	0.86625921	2.362	0.0184
20-49 Employees	0.544397	0.19621242	2.775	0.0057
50-99 Employees	0.450609	0.17152225	2.627	0.0088
100-249 Employees	0.300281	0.16010604	1.876	0.0611
250-1,000 Employees	0.057446	0.13055951	0.440	0.6601
Multiestablishment	0.296103	0.10226445	2.895	0.0039
Textile & Apparel	0.240959	0.21313366	1.131	0.2586
Lumber/Paper	0.343327	0.19833013	1.731	0.0838
Printing & Publishing	0.462568	0.21538623	2.148	0.0321
Chemicals & Petroleum	0.626608	0.22580209	2.775	0.0057
Primary Metals	0.453013	0.20382850	2.223	0.0265
Fabricated Metals	-0.045324	0.20717162	-0.219	0.8269
Machinery/Electrical	0.069755	0.20613542	0.338	0.7352
Transportation Equipment	0.084911	0.21481383	0.395	0.6927
Misc. Manufacturing	0.291042	0.19743655	1.474	0.1409
Sizing	0.001330	0.00112387	1.183	0.2372
Computer Use	0.002192	0.00164795	1.330	0.1838
Technical Workers	-0.001676	0.00686995	-0.244	0.8073
Clerical Workers	-0.005470	0.00620899	-0.881	0.3786
Front-Line Workers	-0.001805	0.00413118	-0.437	0.6622
Change in Skill Req.	0.136551	0.09983419	1.368	0.1718
New-Hire Orientation	0.398595	0.12654521	3.150	0.0017
Tuition Reimbursement	0.094927	0.12282259	0.773	0.4398
Remedial Skills Training	0.032521	0.05867832	0.554	0.5796
Education-Technical	0.018757	0.02025143	0.926	0.3546
Education-Clerical	0.022684	0.03749114	0.605	0.5453
Education-Front-Line	0.014810	0.05525397	0.268	0.7887
Employed <1 Year	-0.006822	0.00368172	-1.853	0.0643
Recruitment Costs	-0.009072	0.00918324	-0.988	0.3235
School Screening	0.045204	0.01458336	3.100	0.0020
Job Exp. Screening	-0.000725	0.02048471	-0.035	0.9718
Internship Programs	0.194968	0.10444092	1.867	0.0623
Cooperative Hiring	0.168410	0.10464532	1.609	0.1079

Table 6

Standard Multivariate Regression Analysis Using the Log of the Average Total Hours of Informal Training as the Dependent Variable for the Non-Manufacturing Sector

Dependent Variable: informal training hours (The log of the average total hours of informal training by supervisor, co-worker, and others that a front-line worker receives to become fully proficient in a job)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	33	189.02722	5.72810	3.343	0.0001
Error	584	1000.74044	1.71360		
C Total	617	1189.76765			

Root MSE	1.30904	R-square	0.1589
Dep Mean	4.33638	Adj R-sq	0.1143
C.V.	30.18750		

(Table 6 continued on next page)

(Table 6, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > ITI
Intercept	1.123123	0.75469622	1.488	0.1372
20-49 Employees	0.671461	0.22206383	3.024	0.0026
50-99 Employees	0.458934	0.22443301	2.045	0.0413
100-249 Employees	0.341835	0.21738172	1.573	0.1164
250-1,000 Employees	0.283410	0.22016269	1.287	0.1985
Multiestablishment	0.054822	0.12408101	0.442	0.6588
Construction	0.215895	0.25248722	0.855	0.3929
Transportation	-0.006153	0.26872188	-0.023	0.9817
Communication	0.194735	0.31388232	0.620	0.5352
Utilities	0.886276	0.28217968	3.141	0.0018
Wholesale Trade	-0.045140	0.25535876	-0.177	0.8598
Retail Trade	-0.034189	0.27892442	-0.123	0.9025
Finance	-0.019312	0.29009705	-0.067	0.9469
Insurance	0.135159	0.29351617	0.460	0.6453
Hotels	0.103080	0.26325955	0.392	0.6955
Business Services	-0.149001	0.27215235	-0.547	0.5843
Sizing	0.000252	0.00216936	0.116	0.9077
Computer Use	0.003310	0.00168706	1.962	0.0502
Technical Workers	0.001213	0.00429864	0.282	0.7780
Clerical Workers	-0.002046	0.00475542	-0.430	0.6672
Front-Line Workers	-0.003462	0.00340178	-1.018	0.3092
Change in Skill Req.	0.031681	0.11903743	0.266	0.7902
New-Hire Orientation	0.087967	0.14703129	0.598	0.5499
Tuition Reimbursement	0.278784	0.13241341	2.105	0.0357
Remedial Skills Training	0.065714	0.07638788	0.860	0.3900
Education-Technical	0.044900	0.02146510	2.092	0.0369
Education-Clerical	0.034735	0.04117952	0.844	0.3993
Education-Front-Line	0.101843	0.03047283	3.342	0.0009
Employed <1 Year	-0.001863	0.00319957	-0.582	0.5606
Recruitment Costs	-0.000713	0.00849820	-0.084	0.9332
School Screening	0.004891	0.01850238	0.264	0.7916
Job Exp. Screening	0.004567	0.02536901	0.180	0.8572
Internship Programs	0.038366	0.12447685	0.308	0.7580
Cooperative Hiring	0.229469	0.12929798	1.775	0.0765

Conclusions

Our exploratory analysis yields three principal, albeit preliminary, answers to the questions posed by the National School-to-Work Office:

1. Establishments that use school measures—grades, teacher recommendations, and the reputation of an applicant's school—to screen job applicants have workforces with a smaller proportion of employees with less than one year of tenure. The implication is that these establishments do less trial-and-error hiring. To the extent there are substantial costs associated with high turnover during the first year of employment, it can be said that these firms avoid those costs.

2. Within the manufacturing sector, establishments that use school measures to screen job applicants provide more training—both formal and informal—to new workers. In general, it is the manufacturing sector that is the more purposeful in both its use of school measures to screen job applicants and in its investment in training.

3. Taken in conjunction with earlier findings derived from the EQW National Employer Survey, the results of our analysis for the National School-to-Work Office suggest the existence of a kind of education and training nexus. That is, by and large, it is the same set of establishments that uses school measures to screen job applicants, that invests in the initial training of new employees, that provides tuition benefits so employees can enroll in work-related courses outside of the firm, that reports increased skill requirements for their jobs, and that is more likely to have non-managers and non-supervisors using computers.

The next task is to confirm and extend these findings when the results of the resurvey of establishments participating in the EQW National Employer Survey become available. That resurvey is currently scheduled to occur in early 1996.

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Appendix A
Variable Definitions and Text of Survey Questions from the EQW-NES

Table A1: Independent Variables

Cluster	Variable	Description	Question Number
General Control Variables	Industry codes	Please refer to the industry key in Appendix B.	From Question 4
	20-49 employees	1=Establishment has 20-49 employees; 0=other.	From Question 40
	50-99 employees	1=Establishment has 50-99 employees; 0=other.	From Question 40
	100-249 employees	1=Establishment has 100-249 employees; 0=other.	From Question 40
	250-1,000 employees	1=Establishment has 250-1,000 employees; 0=other.	From Question 40
	1,000+ employees	1=Establishment has 1,000 or more employees; 0=other.	From Question 40
Condition of Establishment	Sizing	Establishments percentage change in employment size from 1991 to 1993: 0%=no change in employment size; a positive percentage indicates a growth in employment size; a negative percentage indicates establishment is downsizing.	From Question 46
	Change in skill requirements	1=Skills required to perform production or support jobs at an acceptable level have increased; 0=decreased or no change.	From Question 14
	Employed <1 Year	Percentage of currently employed workers that have been with the establishment for less than 1 year.	From Question 44
	Type of establishment	1=establishment is part of a multi-establishment enterprise; 0=single establishment.	From Question 2a
	Computer use	Percentage of production and non-supervisors using computers in their jobs.	From Question 12
Condition of Workforce	Clerical workers	Percentage of total workforce that is office/clerical/sales/customer service.	From Question 41
	Front-line workers	Percentage of total workforce that is production or front-line workers.	From Question 41
	Technical workers	Percentage of total workforce that is technical/technical support.	From Question 41
	Education-clerical	The average number of years of completed schooling for office/clerical workers.	From Question 42
	Education-front-line	The average number of years of completed schooling for production/front-line workers.	From Question 42
	Education-technical	The average number of years of completed schooling for technical/technical support workers.	From Question 42
Employer Investments in Employees	Remedial skills training	1=A portion of formal training is spent on remedial skills in literacy and arithmetic; 0=no remedial skills training.	From Question 28
	Tuition reimbursement	1=Establishment pays for tuition reimbursement; 0=no.	From Question 17m
	Recruitment costs	Percentage of total labor costs spent annually on recruitment and selection of employees.	From Question 38
	New-hire orientation	1=Establishment provides new-hire orientation training; 0=no.	From Question 17f

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(Table A1, continued)

Cluster	Variable	Description	Question Number
Involvement in the Education System	Cooperative hiring	1=Establishment has Agreement-to-Hire arrangements with local schools; 0=no.	From Question 39
	Internship programs	1=Establishment has internship programs; 0=no.	From Question 39
Importance of Screening Mechanisms	Job experience screening	Sum of establishments' ranking of importance of previous work experience, previous employer's recommendation, and current employees' recommendation when considering hiring a new non-supervisory or production worker.	From Question 57
	School screening	Sum of establishments' ranking of importance of years of completed schooling, academic performance, teacher recommendations, and reputation of applicant's school when considering hiring a new non-supervisory or production worker.	From Question 57

Table A2: Dependent Variables

Variable	Description	Question Number
Low tenure	1=More than 10% of workforce has been with establishment less than 1 year; 0=10% or less of employees have been with establishment less than 1 year.	From Question 44
Employed <1 Year	Percentage of currently employed workers that have been with the establishment for less than 1 year.	From Question 44
Informal training hours	The log of the average total hours of informal training (by supervisor, co-worker, and other) a front-line worker receives to become fully proficient in a job.	From Question 34
Formal training costs	Percentage of total labor costs spent on training new non-supervisory workers	From Question 22
High formal training costs	1=Establishment spends more than the median on training new non-supervisory workers relative to total labor costs; 0=Establishment spends median or less.	From Question 26
Recruitment costs	Percentage of total labor costs spent annually on recruitment and selection of employees.	From Question 58
High recruitment costs	1=Establishment spends more than the median on recruitment relative to total labor costs; 0=Establishment spends the median or less.	From Question 58

Table A3

Text of Survey Questions on the EQW-NES

Question 2a

Is this the only establishment in your enterprise, or are there others?

<1> Only one

<2> Others

Question 4

We have your establishment's principal product (line of business) listed as (fill in product/business). Is this correct?

<1> Yes [go to question 4b]

<2> No [go to question 4a]

Question 12

What percentage of your production and non-supervisory employees use computers in their jobs?

Question 14

In the last 3 years, have the skills required to perform production or support jobs (primary or front-line services or support jobs) at an acceptable level increased, decreased, or remained the same in your establishment?

<1> Increased

<2> Decreased

<3> Remained the same

Question 17f

Does your establishment pay for or provide new-hire orientation training?

<1> Yes

If yes, does your establishment plan to increase, decrease, or maintain this training in the next three years?

<1> Increase

<2> Decrease

<3> Maintain

<2> No

If no, does your establishment expect to introduce this type of training in the next three years?

<1> No

<2> Yes

Question 17m

Does your establishment pay for or provide tuition reimbursement?

<1> Yes

If yes, does your establishment plan to increase, decrease, or maintain this training in the next three years?

<1> Increase

<2> Decrease

<3> Maintain

<2> No

If no, does your establishment expect to introduce this type of training in the next three years?

<1> No

<2> Yes

Question 26

What percentage of total training costs is spent on:

a. Newly hired managers and supervisors?

b. Continuing training for managers and supervisors?

c. Newly hired non-supervisory employees?

d. Continuing training for non-supervisory employees?

Question 28

Regarding your non-managerial and non-supervisory employees, how much of their time in formal training is spent performing activities in the following categories:

a. Remedial skills in literacy and arithmetic?

b. Training to use computers and other new equipment?

c. Training in sales and customer service?

d. Training on the safe use of equipment and tools?

e. Improving team-work or problem-solving skills?

<1> Most

<2> Some

<3> Little

<4> None

Question 34

For a newly hired non-managerial worker most directly involved in your establishment's primary product (line of business), how many hours of informal training on average would the newly hired worker receive by each of these individuals before becoming fully proficient in a job?

<1> Hours by supervisor

<2> Hours by co-worker

<3> Hours by other

Question 39

Does your establishment participate in any of the following activities?

a. Provide funds or equipment to educational institutions

b. Participation on educational advisory boards

c. Participation on Private Industry Councils

d. Cooperative research agreements with local universities

e. Internship programs

f. Adopt-a-School arrangements with local schools

g. Agreement-to-Hire with local schools (e.g., co-op education programs)

<1> Yes

<2> No

Question 40

How many employees were on your payroll at the end of 1993:

a. Total work force

Of these employees, how many were:

b. Full-time?

c. Part-time?

d. Temporary or contract workers?

Question 41

Of your total workforce at this location at the end of 1993, what percentage were:

a. Managers/professionals?

b. Supervisors?

c. Technical/technical support?

d. Office/clerical/sales/customer service? (Office/clerical?)

e. Production workers? (Sales/customer service/other front-line workers?)

Question 42

What is the average number of years of completed schooling for the following categories of employees in your establishment?

a. Managers/professionals?

b. Supervisors?

c. Technical/technical support?

d. Office/clerical/sales/customer service? (Office/clerical?)

e. Production workers? (Sales/customer service/other front-line workers?)

Question 44

What percentage of your currently employed workers have been with the firm for less than one year?

Question 46

In the past three years, has the number of employees at your establishment increased, decreased, or stayed the same?

<1> Increased

You have mentioned that there was an increase, by what percentage has your employment changed?

<2> Decreased

You have mentioned that there was a decrease, by what percentage has your employment changed?

<3> Stayed the same

Question 57

When you consider hiring a new non-supervisory, or production worker (front-line worker), how important are the following in your decision to hire? Please use a scale from 1 to 5, where 5 is very important and 1 is not important or not considered:

a. Previous work experience of the applicant

b. Previous employer's recommendation

c. Years of completed schooling

d. Academic performance (grades)

e. Teacher recommendations

f. Recommendations from current employees

g. Experience or reputation of applicant's school

h. Applicant's attitude

i. Applicant's communication skills

j. Score received in any tests administered as part of the interview

k. Industry-based credentials (certifying applicant's skills)

Question 58

What percentage of total labor costs is spent annually on the recruitment and selection of employees for your establishment?

Appendix B

Standard Industry Codes for Establishments in the EQW National Employer Survey Sample

Variable	SIC Codes	Category
IND1	20, 21	Food & Tobacco
IND2	22, 23	Textile & Apparel
IND3	24,26	Lumber, Paper Products
IND4	27	Printing & Publishing
IND5	28, 29	Chemicals & Petroleum
IND6	33	Primary Metals
IND7	34	Fabricated Metals
IND8	35, 36, 38	Machinery & Electrical, Instruments
IND9	37	Transportation Equipment
IND10	25,30,31,32,39	Miscellaneous Manufacturing
IND11	15, 16, 17	Construction
IND12	42, 45	Transportation
IND13	48	Communication
IND14	49	Utilities
IND15	50, 51	Wholesale Trade
IND16	52-59	Retail Trade
IND17	60,61,62	Finance
IND18	63,64	Insurance
IND19	70	Hotels
IND20	73	Business Services
IND21	80	Health Services
IND22*	65,78,87	Miscellaneous Non-Manufacturing

*IND22 is always dropped from analyses because of a small N value.

Appendix C

Weighted Responses to Question 57 on the EQW National Employer Survey

Question 57: When you consider hiring a new non-supervisory or production worker (front-line worker), how important are the following in your decision to hire?

Applicant Characteristics	Mean Rank
Applicant's Attitude	4.6
Applicant's Communication Skills	4.2
Previous Work Experience	4.0
Recommendations from Current Employees	3.4
Previous Employer Recommendation	3.4
Industry-Based Credentials	3.2
Years of Completed Schooling	2.9
Score on Tests Administered in the Interview	2.5
Academic Performance (Grades)	2.5
Experience or Reputation of Applicant's School	2.4
Teacher Recommendations	2.1

Appendix D

Standard Multivariate Regression and Logistic Analyses Using Recruitment Costs as the Dependent Variable for the Manufacturing and Non-Manufacturing Sectors

Table D1

Standard Multivariate Regression Analysis: Manufacturing Sector

Dependent Variable: recruitment costs (Percentage of total labor costs spent annually on recruitment and selection of employees)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	31	2376.77408	76.67013	3.389	0.0001
Error	781	17666.35507	22.62017		
C Total	812	20043.12915			

Root MSE	4.75607	R-square	0.1186
Dep Mean	3.04797	Adj R-sq	0.0836
C.V.	156.04045		

(Table D1, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
Intercept	-2.107183	3.37456790	-0.624	0.5325
20-49 Employees	-0.876828	0.76390467	-1.148	0.2514
50-99 Employees	-0.259821	0.66827794	-0.389	0.6975
100-249 Employees	0.881407	0.62306121	1.415	0.1576
250-1,000 Employees	0.454305	0.50847001	0.893	0.3719
Multiestablishment	0.236953	0.39838689	0.595	0.5522
Textile & Apparel	0.895317	0.82986481	1.079	0.2810
Lumber/Paper	0.378718	0.77268164	0.490	0.6242
Printing & Publishing	0.640166	0.83894752	0.763	0.4457
Chemicals & Petroleum	0.289411	0.87978502	0.329	0.7423
Primary Metals	0.559346	0.79397283	0.704	0.4813
Fabricated Metals	0.890098	0.80662311	1.103	0.2702
Machinery/Electrical	-0.095035	0.80320688	-0.118	0.9058
Transportation Equipment	0.402452	0.83690592	0.481	0.6307
Misc. Manufacturing	1.065346	0.76837356	1.386	0.1660
Sizing	-0.003357	0.00437755	-0.767	0.4434
Computer Use	0.013699	0.00640256	2.140	0.0327
Technical Workers	-0.067983	0.02665824	-2.550	0.0110
Clerical Workers	-0.021429	0.02418139	-0.886	0.3758
Production Workers	-0.060584	0.01595063	-3.798	0.0002
Change in Skill Req.	-0.206413	0.38893740	-0.531	0.5958
New-Hire Orientation	0.525916	0.49272870	1.067	0.2861
Tuition Reimbursement	-0.169167	0.47854435	-0.354	0.7238
Remedial Skills Training	0.925448	0.22623139	4.091	0.0001
Education-Technical	-0.134568	0.07876338	-1.709	0.0879
Education-Clerical	0.278998	0.14574407	1.914	0.0559
Education-Front-Line	0.335797	0.21496353	1.562	0.1187
Employed <1 Year	0.067022	0.01414407	4.738	0.0001
Internship Programs	-0.392838	0.40671496	-0.966	0.3344
Cooperative Hiring	0.347144	0.40756500	0.852	0.3946
School Screening	0.082045	0.05674871	1.446	0.1486
Job Exp. Screening	0.055998	0.07979424	0.702	0.4830

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Table D2

Standard Multivariate Regression Analysis: Non-Manufacturing Sector

Dependent Variable: recruitment costs (Percentage of total labor costs spent annually on recruitment and selection of employees)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	32	5344.99088	167.03097	4.118	0.0001
Error	585	23727.66446	40.56011		
C Total	617	29072.65534			

Root MSE	6.36868	R-square	0.1838
Dep Mean	4.62621	Adj R-sq	0.1392
C.V.	137.66511		

(Table D2, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
Intercept	4.932740	3.66603374	1.346	0.1790
20-49 Employees	-1.031092	1.07953003	-0.955	0.3399
50-99 Employees	0.120004	1.09188652	0.110	0.9125
100-249 Employees	1.315585	1.05619266	1.246	0.2134
250-1,000 Employees	0.792781	1.07062049	0.740	0.4593
Multiestablishment	0.254699	0.60357951	0.422	0.6732
Construction	-0.887428	1.22783737	-0.723	0.4701
Transportation	1.254690	1.30633973	0.960	0.3372
Communication	2.993103	1.52205875	1.966	0.0497
Utilities	-1.206133	1.37193738	-0.879	0.3797
Wholesale Trade	1.121686	1.24149001	0.903	0.3666
Retail Trade	0.242449	1.35696910	0.179	0.8583
Finance	2.225631	1.40835956	1.580	0.1146
Insurance	0.764836	1.42764682	0.536	0.5923
Hotels	2.198445	1.27756498	1.721	0.0858
Business Services	1.395517	1.32280133	1.055	0.2919
Sizing	-0.005454	0.01055183	-0.517	0.6055
Computer Use	-0.009016	0.00819932	-1.100	0.2720
Technical Workers	-0.022737	0.02089233	-1.088	0.2769
Clerical Workers	-0.035951	0.02308798	-1.557	0.1200
Front-Line Workers	-0.052437	0.01640749	-3.196	0.0015
Change in Skill Req.	0.131432	0.57910817	0.227	0.8205
New-Hire Orientation	2.041865	0.71032865	2.875	0.0042
Tuition Reimbursement	-0.327350	0.64406750	-0.508	0.6115
Remedial Skills Training	1.585149	0.36581328	4.333	0.0001
Education-Technical	-0.091896	0.10436158	-0.881	0.3789
Education-Clerical	-0.120833	0.20028181	-0.603	0.5465
Education-Front-Line	0.074252	0.14822278	0.501	0.6166
Employed <1 Year	0.056961	0.01538715	3.702	0.0002
Internship Programs	-0.964342	0.60428326	-1.596	0.1111
Cooperative Hiring	2.721050	0.61891087	4.397	0.0001
School Screening	-0.032394	0.09000667	-0.360	0.7190
Job Exp. Screening	0.076409	0.12338331	0.619	0.5360

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Table D3

Logistic Analysis: Manufacturing Sector

Response Variable: high recruitment costs (1=Establishment spends more than the median on recruitment relative to total labor costs; 0=establishment spends the median or less)

Number of Observations: 873

Response Profile

Ordered Value	High Recruitment Costs	Count
1	1	39
2	0	482

Testing Global Null Hypothesis: BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	1202.732	1193.827	
SC	1207.504	1346.529	
-2 LOG L	1200.732	1129.827	70.905 with 31 DF (p=0.0001)
Score			68.298 with 31 DF (p=0.0001)

(Table D3, continued)

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
Intercept	-1.6947	1.4261	1.4122	0.2347		
20-49 Employees	-0.2005	0.3239	0.3830	0.5360	-0.038603	0.818
50-99 Employees	-0.1790	0.2821	0.4029	0.5256	-0.037742	0.836
100-249 Employees	0.2631	0.2602	1.0223	0.3120	0.055323	1.301
250-1,000 Employees	0.4186	0.2130	3.8608	0.0494	0.106947	1.520
Multiestablishment	0.0225	0.1701	0.0176	0.8945	0.005925	1.023
Textile & Apparel	0.6656	0.3467	3.6845	0.0549	0.103506	1.946
Lumber/Paper	-0.0905	0.3234	0.0783	0.7796	-0.016168	0.913
Printing & Publishing	-0.1665	0.3517	0.2240	0.6360	-0.027364	0.847
Chemicals & Petroleum	0.2982	0.3708	0.6465	0.4214	0.045245	1.347
Primary Metals	-0.2914	0.3378	0.7442	0.3883	-0.050293	0.747
Fabricated Metals	-0.1449	0.3408	0.1808	0.6707	-0.024185	0.865
Machinery/Electrical	0.1629	0.3366	0.2341	0.6285	0.028363	1.177
Transportation Equipment	0.0525	0.3532	0.0221	0.8817	0.007973	1.054
Misc. Manufacturing	0.2561	0.3196	0.6423	0.4229	0.046149	1.292
Sizing	-0.00279	0.00212	1.7275	0.1887	-0.063468	0.997
Computer Use	0.00476	0.00264	3.2549	0.0712	0.080273	1.005
Technical Workers	-0.0263	0.0112	5.4770	0.0193	-0.145566	0.974
Clerical Workers	-0.0202	0.0104	3.7682	0.0522	-0.126521	0.980
Front-Line Workers	-0.0193	0.00690	7.8539	0.0051	-0.224483	0.981
Change in Skill Req.	0.0811	0.1665	0.2374	0.6261	0.021730	1.085
Remedial Skills Training	0.2169	0.0965	5.0489	0.0246	0.095394	1.242
New-Hire Orientation	0.1072	0.2082	0.2652	0.6065	0.023266	1.113
Tuition Reimbursement	0.0897	0.2043	0.1927	0.6607	0.020572	1.094
Education-Technical	-0.0424	0.0326	1.6940	0.1931	-0.062666	0.959
Education-Front-Line	0.1669	0.0909	3.3689	0.0664	0.082027	1.182
Education-Clerical	0.0419	0.0613	0.4678	0.4940	0.028474	1.043
Employed <1 Year	0.0168	0.00606	7.6833	0.0056	0.123375	1.017
Internship Programs	-0.0598	0.1725	0.1202	0.7288	-0.016486	0.942
Cooperative Hiring	0.0701	0.1732	0.1638	0.6856	0.016473	1.073
School Screening	0.0314	0.0239	1.7253	0.1890	0.059754	1.032
Job Exp. Screening	0.00144	0.0338	0.0018	0.9661	0.001776	1.001

Association of Predicted Probabilities and Observed Responses

Concordant	= 65.6%	Somers' D	= 0.315
Discordant	= 34.0%	Gamma	= 0.317
Tied	= 0.4%	Tau-a	= 0.156
(188462 pairs)		c	= 0.658

Table D4

Logistic Analysis: Non-Manufacturing Sector

Response Variable: high recruitment costs (1=Establishment spends more than the median on recruitment relative to total labor costs; 0=establishment spends the median or less)

Number of Observations: 660

Response Profile

Ordered Value	High Recruitment Costs	Count
1	1	373
2	0	287

Testing Global Null Hypothesis: BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	905.716	836.352	
SC	910.209	984.596	
-2 LOG L	903.716	770.352	133.364 with 32 DF (p=0.0001)
Score			120.370 with 32 DF (p=0.0001)

(Table D4, continued)

Analysis of Maximum Likelihood Estimates

Variable	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate	Odds Ratio
Intercept	-1.7147	1.2684	1.8275	0.1764		
20-49 Employees	-0.3689	0.3635	1.0297	0.3102	-0.092989	0.692
50-99 Employees	-0.1199	0.3681	0.1061	0.7446	-0.027594	0.887
100-249 Employees	0.0626	0.3550	0.0311	0.8601	0.014036	1.065
250-1,000 Employees	0.3539	0.3683	0.9233	0.3366	0.073810	1.425
Multiestablishment	0.3217	0.2046	2.4717	0.1159	0.084572	1.379
Construction	-0.8371	0.4155	4.0590	0.0439	-0.157002	0.433
Transportation	-0.0405	0.4457	0.0083	0.9275	-0.006431	0.960
Communication	0.4321	0.5231	0.6825	0.4087	0.053430	1.541
Utilities	-1.1820	0.4637	6.4969	0.0108	-0.170978	0.307
Wholesale Trade	-0.3788	0.4224	0.8044	0.3698	-0.070709	0.685
Retail Trade	-0.4218	0.4584	0.8469	0.3574	-0.068873	0.656
Finance	-0.1097	0.4905	0.0500	0.8231	-0.016014	0.896
Insurance	-0.4728	0.4864	0.9449	0.3310	-0.067743	0.623
Hotels	0.4625	0.4583	1.0185	0.3129	0.077072	1.588
Business Services	-0.4468	0.4602	0.9426	0.3316	-0.071392	0.640
Sizing	-0.00085	0.00370	0.0534	0.8172	-0.011748	0.999
Computer Use	-0.00200	0.00276	0.5228	0.4697	-0.043313	0.998
Technical Workers	0.00289	0.00694	0.1738	0.6767	0.032015	1.003
Clerical Workers	0.00511	0.00810	0.3975	0.5284	0.051051	1.005
Front-Line Workers	-0.00858	0.00558	2.3674	0.1239	-0.149485	0.991
Change in Skill Req.	0.3670	0.1940	3.5784	0.0585	0.096766	1.443
Remedial Skills Training	0.3689	0.1332	7.6671	0.0056	0.150194	1.446
New-Hire Orientation	0.6872	0.2359	8.4893	0.0036	0.155418	1.988
Tuition Reimbursement	0.0394	0.2186	0.0325	0.8569	0.010582	1.040
Education-Technical	-0.0551	0.0357	2.3796	0.1229	-0.089472	0.946
Education-Front-Line	0.0746	0.0501	2.2192	0.1363	0.078382	1.077
Education-Clerical	0.0118	0.0664	0.0316	0.8589	0.009259	1.012
Employed <1 Year	0.0256	0.00578	19.6802	0.0001	0.268252	1.026
Internship Programs	-0.1511	0.2071	0.5326	0.4655	-0.041529	0.860
Cooperative Hiring	0.4198	0.2163	3.7658	0.0523	0.102252	1.522
School Screening	0.0459	0.0301	2.3298	0.1269	0.087717	1.047
Job Exp. Screening	0.0221	0.0418	0.2793	0.5972	0.028464	1.022

Association of Predicted Probabilities and Observed Responses

Concordant	= 75.1%	Somers' D	= 0.504
Discordant	= 24.7%	Gamma	= 0.505
Tied	= 0.2%	Tau-a	= 0.248
(107051 pairs)		c	= 0.752

Appendix E

Standard Multivariate Regression Analysis Using the Percentage of Employees with Under One Year of Tenure as the Dependent Variable for Both the Manufacturing and Non-Manufacturing Sectors

Table E1

Standard Multivariate Regression Analysis: Manufacturing Sector

Dependent Variable: employed less than 1 year (Percentage of currently employed workers that have been with the establishment for less than 1 year)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	31	32683.32095	1054.30068	7.492	0.0001
Error	781	109910.14031	140.73001		
C Total	812	142593.46125			

Root MSE	11.86297	R-square	0.2292
Dep Mean	12.56827	Adj R-sq	0.1986
C.V.	94.38827		

(Table E1, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
Intercept	15.054893	8.40196962	1.792	0.0735
20-49 Employees	1.197400	1.90651809	0.628	0.5302
50-99 Employees	2.377442	1.66486229	1.428	0.1537
100-249 Employees	1.940727	1.55452927	1.248	0.2122
250-1,000 Employees	2.284387	1.26627959	1.804	0.0716
Multiestablishment	-2.370971	0.99028638	-2.394	0.0169
Textile & Apparel	0.338571	2.07142259	0.163	0.8702
Lumber/Paper	-2.822583	1.92493377	-1.466	0.1430
Printing & Publishing	-2.276414	2.09176545	-1.088	0.2768
Chemicals & Petroleum	-5.028975	2.18719299	-2.299	0.0218
Primary Metals	-4.002594	1.97583640	-2.026	0.0431
Fabricated Metals	-5.662112	2.00329325	-2.826	0.0048
Machinery/Electrical	-3.815570	1.99878408	-1.909	0.0566
Transportation Equipment	-1.575531	2.08702635	-0.755	0.4505
Misc. Manufacturing	-0.843569	1.91865951	-0.440	0.6603
Sizing	0.080947	0.01053192	7.686	0.0001
Computer Use	-0.015266	0.01600721	-0.954	0.3405
Technical Workers	-0.024866	0.06676350	-0.372	0.7097
Clerical Workers	0.069482	0.06029425	1.152	0.2495
Front-Line Workers	0.053330	0.04010576	1.330	0.1840
Change in Skill Req.	0.394963	0.97019119	0.407	0.6840
New-Hire Orientation	2.543286	1.22652837	2.074	0.0384
Tuition Reimbursement	-3.661842	1.18650641	-3.086	0.0021
Remedial Skills Training	-0.199148	0.57025339	-0.349	0.7270
Education-Technical	-0.155001	0.19674663	-0.788	0.4310
Education-Clerical	0.107179	0.36435836	0.294	0.7687
Education-Front-Line	0.069887	0.53701064	0.130	0.8965
Recruitment Costs	0.416971	0.08799643	4.738	0.0001
Internship Programs	0.729107	1.01473184	0.719	0.4727
Cooperative Hiring	3.053689	1.01116689	3.020	0.0026
School Screening	-0.624556	0.13996353	-4.462	0.0001
Job Exp. Screening	0.059678	0.19908057	0.300	0.7644

Table E2

Standard Multivariate Regression Analysis: Non-Manufacturing Sector

Dependent Variable: employed less than 1 year (Percentage of currently employed workers that have been with the establishment for less than 1 year)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	32	56280.76432	1758.77389	6.147	0.0001
Error	585	167388.91852	286.13490		
C Total	617	223669.68285			

Root MSE	16.91552	R-square	0.2516
Dep Mean	18.97735	Adj R-sq	0.2107
C.V.	89.13534		

(Table E2, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
Intercept	40.210653	9.60946325	4.184	0.0001
20-49 Employees	-2.987810	2.86685778	-1.042	0.2978
50-99 Employees	-0.506971	2.90005678	-0.175	0.8613
100-249 Employees	-0.999424	2.80871162	-0.356	0.7221
250-1,000 Employees	-0.303472	2.84492368	-0.107	0.9151
Multiestablishment	2.686676	1.59952748	1.680	0.0936
Construction	0.854868	3.26245879	0.262	0.7934
Transportation	-4.376046	3.46771843	-1.262	0.2075
Communication	-4.604727	4.05152963	-1.137	0.2562
Utilities	-12.649676	3.60863514	-3.505	0.0005
Wholesale Trade	-7.465016	3.28529046	-2.272	0.0234
Retail Trade	5.354956	3.59746644	1.489	0.1371
Finance	-6.727467	3.73831257	-1.800	0.0724
Insurance	-5.340493	3.78639544	-1.410	0.1589
Hotels	7.078803	3.38923753	2.089	0.0372
Business Services	4.840608	3.51106455	1.379	0.1685
Sizing	0.139483	0.02743296	5.085	0.0001
Computer Use	-0.009892	0.02179644	-0.454	0.6501
Technical Workers	0.078454	0.05545239	1.415	0.1577
Clerical Workers	0.070710	0.06138016	1.152	0.2498
Front-Line Workers	0.092928	0.04378965	2.122	0.0342
Change in Skill Req.	0.256966	1.53816990	0.167	0.8674
New-Hire Orientation	2.447170	1.89724837	1.290	0.1976
Tuition Reimbursement	-2.776608	1.70719619	-1.626	0.1044
Remedial Skills Training	-0.727178	0.98662938	-0.737	0.4614
Education-Technical	-0.426168	0.27681274	-1.540	0.1242
Education-Clerical	-1.057788	0.53032325	-1.995	0.0465
Education-Front-Line	-0.149978	0.39372236	-0.381	0.7034
Recruitment Costs	0.401839	0.10855000	3.702	0.0002
Internship Programs	0.785581	1.60816695	0.488	0.6254
Cooperative Hiring	1.375888	1.66982516	0.824	0.4103
School Screening	-0.192551	0.23895588	-0.806	0.4207
Job Exp. Screening	-0.690627	0.32657342	-2.115	0.0349

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Appendix F

Standard Multivariate Regression Analysis Using the Percentage of Total Labor Costs Spent on Training New Non-Supervisory Workers as the Dependent Variable for Both the Manufacturing and Non-Manufacturing Sectors

Table F1

Standard Multivariate Regression Analysis Using the Percentage of Total Labor Costs Spent on Training New Non-Supervisory Workers as the Dependent Variable for the Manufacturing Sector

Dependent Variable: formal training costs (Percentage of total labor costs spent on training new non-supervisory workers)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	32	725.48802	22.67150	3.096	0.0001
Error	780	5712.05697	7.32315		
C Total	812	6437.54499			
	Root MSE	2.70613	R-square	0.1127	
	Dep Mean	1.26828	Adj R-sq	0.0763	
	C.V.	213.37057			

(Table F1, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > ITI
Intercept	-2.918903	1.92055858	-1.520	0.1290
20-49 Employees	0.903280	0.43501695	2.076	0.0382
50-99 Employees	0.649650	0.38027708	1.708	0.0880
100-249 Employees	0.646336	0.35496654	1.821	0.0690
250-1,000 Employees	0.489623	0.28945975	1.692	0.0911
Multiestablishment	0.309090	0.22672760	1.363	0.1732
Textile & Apparel	1.011071	0.47253256	2.140	0.0327
Lumber/Paper	-0.506734	0.43971206	-1.152	0.2495
Printing & Publishing	0.192668	0.47752666	0.403	0.6867
Chemicals & Petroleum	-0.420525	0.50061937	-0.840	0.4012
Primary Metals	-0.173497	0.45190234	-0.384	0.7011
Fabricated Metals	-0.493631	0.45931429	-1.075	0.2828
Machinery/Electrical	-0.103303	0.45701696	-0.226	0.8212
Transportation Equipment	-0.394639	0.47625761	-0.829	0.4076
Misc. Manufacturing	-0.223468	0.43773095	-0.511	0.6098
Sizing	0.000657	0.00249170	0.264	0.7922
Computer Use	0.004335	0.00365362	1.187	0.2357
Technical Workers	0.020876	0.01523117	1.371	0.1709
Clerical Workers	0.002709	0.01376577	0.197	0.8440
Front-Line Workers	0.012984	0.00915911	1.418	0.1567
Change in Skill Req.	0.119406	0.22133954	0.539	0.5897
New-Hire Orientation	0.596451	0.28055976	2.126	0.0338
Tuition Reimbursement	-0.004926	0.27230646	-0.018	0.9856
Remedial Skills Training	0.266655	0.13009403	2.050	0.0407
Education-Technical	0.016772	0.04489887	0.374	0.7088
Education-Clerical	0.060706	0.08312055	0.730	0.4654
Education-Production	0.047113	0.12250201	0.385	0.7006
Employed <1 Year	-0.015661	0.00816263	-1.919	0.0554
Recruitment Costs	0.126994	0.02035989	6.237	0.0001
Internship Programs	-0.253127	0.23155298	-1.093	0.2747
Cooperative Hiring	-0.013321	0.23200615	-0.057	0.9542
School Screening	-0.042548	0.03233236	1.316	0.1886
Job Exp. Screening	-0.030003	0.04541606	-0.661	0.5090

Table F2

Standard Multivariate Regression Analysis Using the Percentage of Total Labor Costs Spent on Training New Non-Supervisory Workers as the Dependent Variable for the Non-Manufacturing Sector

Dependent Variable: formal training costs (Percentage of total labor costs spent on training new non-supervisory workers)

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	33	1715.94292	51.99827	2.431	0.0001
Error	584	12493.95313	21.39376		
C Total	617	14209.89605			
	Root MSE	4.62534	R-square	0.1208	
	Dep Mean	2.06110	Adj R-sq	0.0711	
	C.V.	224.41112			

(Table F2, continued)

Parameter Estimates

Variable	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
Intercept	-0.356555	2.66662158	-0.134	0.8937
20-49 Employees	1.480162	0.78463386	1.886	0.0597
50-99 Employees	2.422524	0.79300502	3.055	0.0024
100-249 Employees	1.141871	0.76809022	1.487	0.1377
250-1,000 Employees	1.550907	0.77791642	1.994	0.0467
Multiestablishment	0.302584	0.43842420	0.690	0.4904
Construction	0.027497	0.89213096	0.031	0.9754
Transportation	-0.634433	0.94949403	-0.668	0.5043
Communication	0.881960	1.10906261	0.795	0.4268
Utilities	0.078800	0.99704542	0.079	0.9370
Wholesale Trade	-0.434155	0.90227718	-0.481	0.6306
Retail Trade	-0.534161	0.98554340	-0.542	0.5880
Finance	1.436923	1.02502042	1.402	0.1615
Insurance	1.043643	1.03710145	1.006	0.3147
Hotels	-0.332893	0.93019359	-0.358	0.7206
Business Services	-0.507620	0.96161516	-0.528	0.5978
Sizing	-0.001248	0.00766515	-0.163	0.8707
Computer Use	0.004048	0.00596101	0.679	0.4974
Technical Workers	-0.003401	0.01518868	-0.224	0.8229
Clerical Workers	-0.018485	0.01680266	-1.100	0.2717
Front-Line Workers	-0.001566	0.01201973	-0.130	0.8964
Change in Skill Req.	0.083960	0.42060338	0.200	0.8418
New-Hire Orientation	0.117836	0.51951605	0.227	0.8206
Tuition Reimbursement	0.196115	0.46786569	0.419	0.6752
Remedial Skills Training	0.398848	0.26990671	1.478	0.1400
Education-Technical	0.003046	0.07584417	0.040	0.9680
Education-Clerical	-0.255057	0.14550253	-1.753	0.0801
Education-Front-Line	0.131626	0.10767181	1.222	0.2220
Employed <1 Year	0.032187	0.01130525	2.847	0.0046
Recruitment Costs	0.118947	0.03002728	3.961	0.0001
Internship Programs	0.930537	0.43982285	- 2.116	0.0348
Cooperative Hiring	-0.240243	0.45685771	-0.526	0.5992
School Screening	0.045761	0.06537575	0.700	0.4842
Job Exp. Screening	-0.004306	0.08963811	-0.048	0.9617

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